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DRAFT A

Hanford Facility Dangerous Waste Closure/Postclosure Plan for the 216-B-63 Trench

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

United States Department of Energy
P.O. Box 550
Richland, Washington 99352

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TERMS

CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
Ecology	Washington State Department of Ecology
GW	groundwater
HEIS	*Hanford Environmental Information System* database
MCL	maximum contaminant level
N/A	not applicable
OU	operable unit
RCRA	*Resource Conservation and Recovery Act of 1976*
SMCL	secondary maximum contaminant level
Tri-Party Agreement	*Hanford Federal Facility Agreement and Consent Order* (Ecology et al. 1989a)
Tri-Party Agreement Action Plan	*Hanford Federal Facility Agreement and Consent Order Action Plan* (Ecology et al. 1989b)
TSD	treatment, storage, and disposal (unit)

METRIC CONVERSION CHART

Into Metric Units			Out of Metric Units		
If You Know	*Multiply By*	*To Get*	*If You Know*	*Multiply By*	*To Get*
Length			**Length**		
inches	25.4	Millimeters	millimeters	0.039	inches
inches	2.54	Centimeters	centimeters	0.394	inches
feet	0.305	Meters	meters	3.281	feet
yards	0.914	Meters	meters	1.094	yards
miles	1.609	Kilometers	kilometers	0.621	miles
Area			**Area**		
sq. inches	6.452	sq. centimeters	sq. centimeters	0.155	sq. inches
sq. feet	0.093	sq. meters	sq. meters	10.76	sq. feet
sq. yards	0.0836	sq. meters	sq. meters	1.196	sq. yards
sq. miles	2.6	sq. kilometers	sq. kilometers	0.4	sq. miles
acres	0.405	Hectares	hectares	2.47	acres
Mass (weight)			**Mass (weight)**		
ounces	28.35	Grams	grams	0.035	ounces
pounds	0.454	Kilograms	kilograms	2.205	pounds
ton	0.907	metric ton	metric ton	1.102	ton
Volume			**Volume**		
teaspoons	5	Milliliters	milliliters	0.033	fluid ounces
tablespoons	15	Milliliters	liters	2.1	pints
fluid ounces	30	Milliliters	liters	1.057	quarts
cups	0.24	Liters	liters	0.264	gallons
pints	0.47	Liters	cubic meters	35.315	cubic feet
quarts	0.95	Liters	cubic meters	1.308	cubic yards
gallons	3.8	Liters			
cubic feet	0.028	cubic meters			
cubic yards	0.765	cubic meters			
Temperature			**Temperature**		
Fahrenheit	subtract 32, then multiply by 5/9	Celsius	Celsius	multiply by 9/5, then add 32	Fahrenheit
Radioactivity			**Radioactivity**		
picocuries	37	Millibecquerel	millibecquerel	0.027	picocuries

1.0 INTRODUCTION

The original closure plan for the 216-B-63 Trench (DOE 1986, *Part A Permit Application for the 216-B-63 Trench, Part A Dangerous Waste Permit Application*) was submitted to the Washington State Department of Ecology (Ecology) pursuant to the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) (Ecology et al. 1989a) milestone M-20-36 in April 1995. This closure plan has been rewritten to supersede the April 1995 closure plan. Documents and information sources mentioned in this closure plan are not intended for incorporation in WA7890008967, *Hanford Facility RCRA Permit.*

Based on current agreements, the 216-B-63 Trench treatment, storage, and/or disposal (TSD) unit will be incorporated into the *Hanford Facility RCRA Permit.* When the permit modification to incorporate the TSD unit becomes effective, the provisions of *Hanford Facility RCRA Permit* Condition II.Y.2.c will apply. Permit Condition II.Y.2.c establishes the corrective action status of the waste site following certification of closure. This closure plan is written to address only the dangerous waste constituents of concern relating to *Resource Conservation and Recovery Act of 1976* (RCRA) TSD unit operations (TSD unit constituents). Therefore, any other constituents of concern described in DOE/RL-2004-17, *Remedial Investigation Report for the 200-CS-1 Chemical Sewer Group Operable Unit,* related to past-practice activities at this waste site will be addressed under past-practice authority, in accordance with Permit Condition II.Y.2.c.ii. Any physical activities necessary to complete remediation of non-TSD unit constituents is outside the scope of this closure plan and will be performed in conjunction with Tri-Party Agreement past-practice activities for the 200-CS-1 source Operable Unit (OU) and the 200-BP-5 Groundwater OU.

The development of this closure plan has been coordinated with the 200-CS-1 source OU in accordance with Tri-Party Agreement milestone M-15-39C. This coordinated approach was established in June 2002 following the completion of negotiations between the U.S. Department of Energy, U.S. Environmental Protection Agency, and Ecology on the modifications to 200 Areas waste-site cleanup milestones through Tri-Party Agreement change requests M-13-02-01, M-15-02-01, M-16-02-01, and M-20-02-01. As a result, much of the text contained in this closure plan has been obtained from existing 200-CS-1 OU *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) documentation.

The proposed closure strategy for the 216-B-63 Trench soils, structures, and groundwater is clean closure. This strategy is based on analytical data summarized in DOE/RL-2004-17 and groundwater data contained in the *Hanford Environmental Information System* (HEIS) database.

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2.0 UNIT DESCRIPTION

This chapter provides a physical description of the 216-B-63 Trench and describes security related to the 216-B-63 Trench.

2.1 PHYSICAL DESCRIPTION AND OPERATIONS

The 216-B-63 Trench is located in the 200 East Area of the Hanford Facility (Figure 1). The 216-B-63 Trench was constructed before 1970 as a percolation trench to receive emergency cooling water and chemical sewer waste from B Plant (221-B Canyon Building). The trench was taken out of service in 1992. The ditch was an open, unlined man-made earthen trench that was closed at one end (did not convey effluent to another facility). The trench was approximately 427 m (1,400 ft) long, 1.2 m (4 ft) wide, and averaged 3 m (10 ft) in depth. The side slope was 1.5:1. The first 3.1 m (10 ft) of the trench contained a 5.1 cm (2-in) rockfill. A 40.6 m (16-in.) inlet pipe approximately 1.5 m (5 ft) long entered the trench 1 m (3 ft) below grade. In addition to the trench itself, the TSD unit also includes the 38 cm (15-in._ pipe extending to the 207-B Retention Basin.

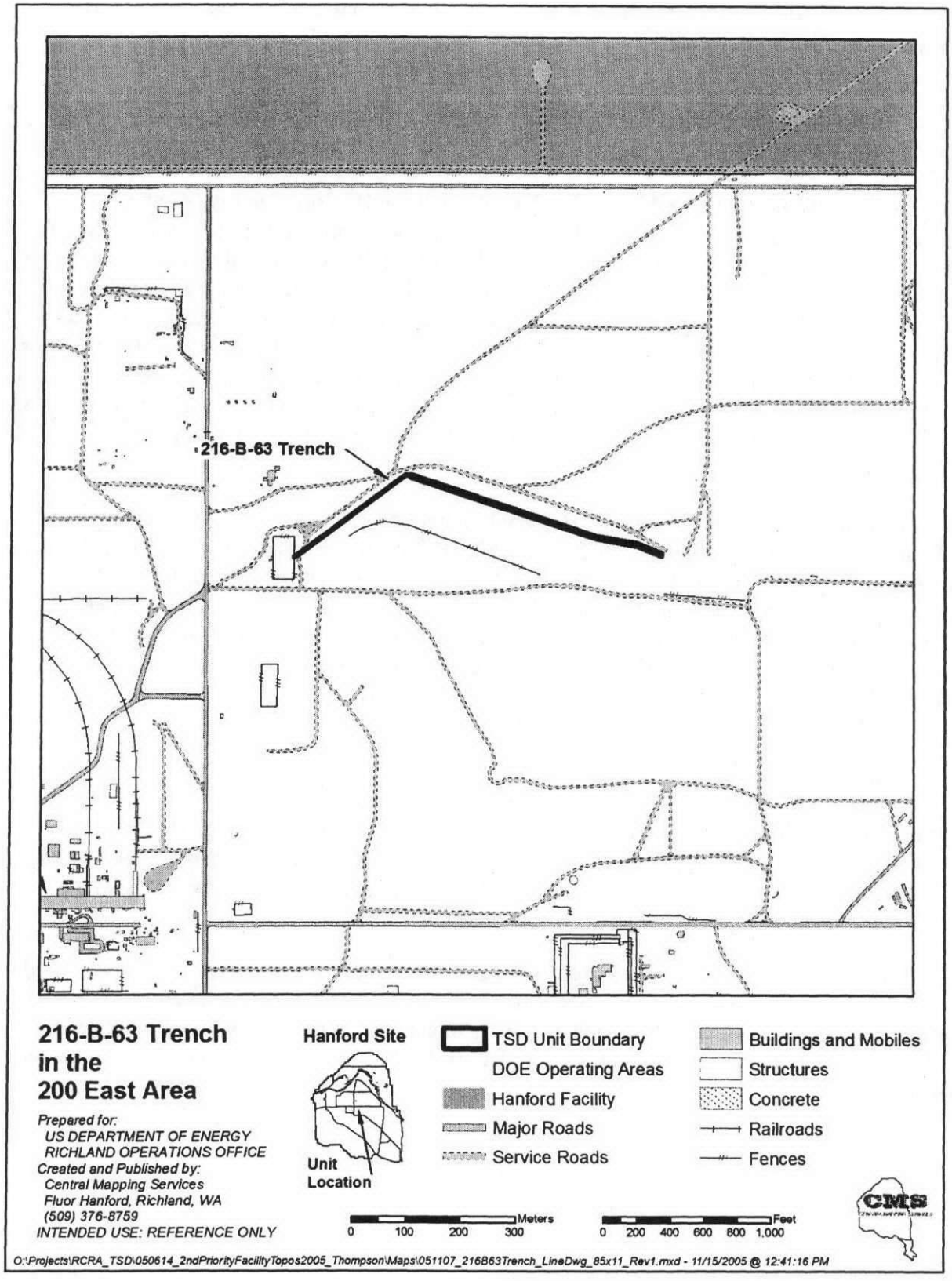
The 216-B-63 Trench began waste management operations in March 1970 by receiving the B Plant chemical sewer effluent. The 216-B-63 Trench received waste between March 1970 and February 1992. The 216-B-63 Trench received effluent from many buildings at the B Plant Complex. The trench terminated south of the 218-E-12B Burial Ground. It was designed to receive diverted contaminated cooling water, to prevent the diverted water from reaching the 216-B-3 Pond. In February 1992, the B Plant chemical sewer effluent was combined with the B Plant cooling water effluent and discharged into the 216-B-3 Pond.

2.2 SECURITY

Security information for the Hanford Facility is discussed in DOE/RL-91-28, *Hanford Facility Dangerous Waste Permit Application*, Section 6.1, General Information Portion. Because the 216-B-63 Trench is located in the 200 East Area, the security information pertaining to the 200 Areas applies to this TSD unit.

Changes to security are expected to occur during the course of 200 East Area deactivation and decommissioning activities. Security measures will remain in place that limit entry to authorized personnel and that preclude unknowing access by unauthorized individuals. Following clean-closure certification of this TSD unit as described in Section 7.8, security provisions no longer will apply.

Figure 1. 216-B-63 Trench Location and Site Plan.



3.0 PROCESS INFORMATION

The B Plant chemical sewer was discharged to the 216-B-63 Trench. The major sources of waste contributions to the 216-B-63 Trench were the 2902-B high tank (potable sanitary water), cooling water from the B Plant and Waste Encapsulation and Storage Facility air-compressor after-coolers, a portion of the 221-B Canyon Building steam condensate, and the demineralizer effluent. Minor contributions came from chemical makeup overflow systems, air conditioning units, and space heaters. These minor contributions were determined to be controlled to levels below dangerous waste designation limits. Further information regarding these sources can be found in WHC-EP-0342, Addendum 6, *B Plant Chemical Sewer Stream-Specific Report.* See Section 7.1 for additional information on physical isolation of the TSD unit.

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4.0 WASTE CHARACTERISTICS

This section identifies the estimate of maximum inventory and the characteristics of the waste disposed of at the 216-B-63 Trench.

4.1 ESTIMATE OF MAXIMUM INVENTORY OF WASTE

The approximate average flow rate of wastewater discharged to the 216-B-63 Trench varied from 378,000 to 1,408,000 L/day (100,000 to 400,000 gal/day). Approximately 68,100,000 kg/yr (or 473,000 L/day [125,000 gal/day]) of corrosive wastes were managed in the 216-B-63 Trench for the period from 1970 to 1985.

4.2 WASTE CHARACTERISTICS

The dangerous wastes received at the 216-B-63 Trench are sodium hydroxide, sulfuric acid, and nitric acid. These chemicals are regulated under WAC 173-303, "Dangerous Waste Regulations," as a dangerous waste because of it's characteristic of corrosivity (D002). The 216-B-63 Trench received corrosive dangerous waste from the regeneration of demineralizer columns in B Plant (271-B Building) and a spill. The demineralizer column effluents were routine corrosive discharges (D002) of sulfuric acid and sodium hydroxide solutions. The corrosive discharges occurred from 1970 until October 1985. After 1985, the cation column effluent was treated with sodium carbonate, and the anion column effluent was treated with monosodium phosphate to maintain a combined pH of between 4 and 10. Dangerous waste flows from the demineralizer columns to the trench ceased in 1985 and all liquid flows to the trench ceased in 1992. A 2,858 kg (6,300-lb) nitric acid spill to the trench occurred in April 1987. For additional information, refer to WHC-EP-0342, Addendum 6.

Based on the dangerous waste received at the 216-B-63 Trench, the TSD unit constituents of concern for RCRA closure are sodium (from sodium hydroxide), sulfate (from sulfuric acid), and nitrate (from nitric acid). These constituents constitute the scope of the TSD unit RCRA closure activities (Table 1). The pHs of the trench soils are reported as 8.0 to 9.5 and are well within the noncorrosive range from WAC 173-303-090(6), "Dangerous Waste Characteristics," "Characteristic of Corrosivity."

Table 1. Comparison of 216-B-63 Trench Remedial Investigation Data to Clean-Closure Levels.

TSD Unit Constituent Related to Part A Waste Code D002	Maximum Concentration Shallow-Zone Soil (mg/kg)	Maximum Concentration Deep-Zone Soil (mg/kg)	Hanford Site Soil Background (mg/kg) [1] 90% Log Normal Distribution	Environmental Protection Ecological Receptors for Shallow Zone Soils [2] (mg/kg)	Human Health Protection Soil Direct Contact [3] (mg/kg) Carcinogen	Human Health Protection Soil Direct Contact [3] (mg/kg) Non-carcinogen	Soil Concentration Protective of Groundwater [4] (mg/kg)	Clean Closure Driver [5]	Meet Clean Closure Standard?
Sodium	457	265	690	N/A	N/A	N/A	N/A	Not regulated	Yes
Sulfate	76.2	18.4	237	N/A	N/A	N/A	1,030	Soil concentration protective of GW	Yes
Nitrate (as N)	76.4[6]	8.1	11.7	N/A	N/A	128,000	83[7]	Soil concentration protective of GW	Yes

[1] DOE/RL-92-24, Volume 1, *Hanford Site Background: Part 1, Soil Background for Nonradioactive Analytes*, Rev. 3.

[2] WAC 173-340-740(3)(b)(ii), "Unrestricted Land Use Soil Cleanup Standards," "Method B Soil Cleanup Levels for Unrestricted Land Use," "Standard Method B Soil Cleanup Levels," "Environmental Protection." Environmental protection ecological receptors are not cleanup levels, based on WAC 173-340-7493(2)(a)(i), "Site-Specific Terrestrial Ecological Evaluation Procedures," "Purpose."

[3] WAC 173-340-740(3)(b)(iii)(B)(I) and (II), "Unrestricted Land Use Soil Cleanup Standards," "Method B Soil Cleanup Levels for Unrestricted Land Use," "Standard Method B Soil Cleanup Levels," "Human Health Protection," "Soil Direct Contact," "Noncarcinogens" and "Carcinogens." Equations are found in I (noncarcinogens) and II (carcinogens) for human health direct contact. Point of compliance is the surface to 15 ft [WAC 173-340-740(6), "Unrestricted Land Use Soil Cleanup Standards," "Point of Compliance"].

[4] WAC 173-340-740(3)(b)(iii)(A), "Unrestricted Land Use Soil Cleanup Standards," "Method B Soil Cleanup Levels for Unrestricted Land Use," "Standard Method B Soil Cleanup Levels," "Human Health Protection," "Ground Water Protection." Point of compliance is soils throughout the site [WAC 173-340-740(6)].

[5] Represents the most restrictive level after ensuring that the most restrictive level is not less than natural background and for analytical considerations as indicated in WAC 173-340-700(6)(d), "Overview of Cleanup Standards," "Requirements for Setting Cleanup Levels," "Natural Background and Analytical Considerations."

[6] 95 percent upper confidence level from DOE/RL-2005-63, *Feasibility Study for the 200-CS-1 Chemical Sewer Group Operable Unit*, Section 2.13, used instead of maximum value from DOE/RL-2004-17, *Remedial Investigation Report for the 200-CS-1 Chemical Sewer Group Operable Unit*.

[7] Alternate fate and transport model established pursuant to WAC 173-340-747(8), "Deriving Soil Concentrations for Ground Water Protection," "Alternative Fate and Transport Models." See DOE/RL-2005-63, *Feasibility Study for the 200-CS-1 Chemical Sewer Group Operable Unit*, Table 3-1.

GW = groundwater.
N/A = not applicable.
Part A = DOE 2002, *216-S-10 Pond and Trench Part A, Form 3 Dangerous Waste Permit Application*, Rev. 6.
TSD = treatment, storage, and disposal (unit).

5.0 GROUNDWATER MONITORING

The 216-B-63 Trench groundwater closure approach is clean closure in accordance with the *Hanford Federal Facility Agreement and Consent Order Action Plan* (Tri-Party Agreement Action Plan) (Ecology et al. 1989b), Section 6.3.1, where any TSD unit is eligible for clean closure at the Hanford Facility. The clean-closure approach is based on the data gathered to date from the monitoring network (PNNL-14112, *Groundwater Monitoring Plan for the 216-B-63 Trench on the Hanford Site*), the groundwater data contained in the HEIS, and text provided in PNNL-15070, *Hanford Site Groundwater Monitoring for Fiscal Year 2004*, Section 2.10.3.2, for the 216-B-63 Trench. Groundwater monitoring will be continued, as appropriate, in the 200-BP-5 Groundwater OU for past-practice discharges. Table 2 shows a comparison of the TSD unit constituent levels in groundwater to clean-closure levels. The clean-closure levels for groundwater are the calculated overall groundwater cleanup levels. Following clean-closure certification of the TSD unit in accordance with Section 7.8, the TSD unit groundwater monitoring program will be discontinued.

The current interim-status groundwater monitoring plan (as required by WAC 173-303-400, "Dangerous Waste Regulations," "Interim Status Facility Standards," and 40 CFR 265, "Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," Subpart F, "Ground-Water Monitoring") is contained in a separate document, PNNL-14112. This document contains further details regarding the geology, hydrology, and current groundwater monitoring programs for the RCRA TSD unit. Excerpts from PNNL-15070 are presented below that provide for more recent monitoring network and groundwater conditions.

Sampling results from the 216-B-63 Trench historically have supported the decision that the TSD unit has not impacted groundwater. The 216-B-63 Trench unit continued to be monitored under an interim-status detection program (40 CFR 265.93(b), "Interim Status for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," "Preparation, Evaluation, and Response,") in fiscal year 2004. The monitoring network is sampled twice, as scheduled, for 12 wells during a calendar year (PNNL-14112). Wells 299-E33-33 and 299-E33-36 exceeded the critical mean for total organic carbon in April, May, and June 2004. The exceedances occurred at a time when a series of anomalously high total organic carbon results were reported across the Hanford Site. Preliminary results indicate that laboratory error may have contributed to the elevated results.

Table 2. Comparison of 216-B-63 Trench Groundwater Data to Clean-Closure Levels.

TSD Unit Constituent Related to Part A Waste Code D002	Maximum Concentration in Groundwater from HEIS (μg/L)	Hanford Site Groundwater Background (μg/L)[1] (90 % Log Normal Distribution)	Overall Groundwater Cleanup Level (μg/L)	Clean Closure Driver [2]	Meet Clean Closure standard?
Sodium	22,000	26,998	N/A	Not regulated	Yes
Sulfate	125,000[3]	47,014	250,000	SMCL	Yes
Nitrate (as N)	4,900[3]	6,067	10,000	MCL	Yes

[1] DOE/RL-96-61, *Hanford Site Background: Part 3, Groundwater Background.*

[2] Listed values represent the most restrictive level of the groundwater pathways after evaluation of this value, to ensure that it is not less than natural background and for analytical considerations as indicated in WAC 173-340-700(6)(d), "Overview of Cleanup Standards," "Requirements for Setting Cleanup Levels," "Natural Background and Analytical Considerations."

[3] One concentration was reported as 10,900J, but the duplicate result was 1,000J. These results are considered unreliable. The letter J indicates that the number is an estimate.

HEIS = *Hanford Environmental Information System.*
MCL = maximum contaminant level.
N/A = not applicable.
Part A = DOE 2002, *216-S-10 Pond and Trench Part A, Form 3 Dangerous Waste Permit Application*, Rev. 6.
SMCL = secondary maximum contaminant level.
TSD = treatment, storage, and disposal.

Over a decade, several nonhazardous constituents that had been rising in concentration slowly and persistently, in most instances have stabilized or have declined in concentration. Results from past sampling efforts have indicated stable or declining concentration of anions. The result from fiscal year 2004 shows a pattern of increase in anions in wells on both ends of the 216-B-63 Trench, with wells in the center either that still exhibit slight downward trend changes or that have with no significant change in trend. Sulfate continues to be the exception, showing an increase in nearly every well tested in fiscal year 2004. The greatest increases in concentration, however, follow the same pattern as the anions; the increases in trend are greatest at the two opposing ends of the trench.

The monitoring well network for the 216-B-63 Trench is shared with both Low-Level Waste Management Area 2 and the B-BX-BY Tank Farms. Samples are gathered twice a year in the spring and fall. Because of the low hydraulic gradient and the highly transmissive media in the 200 East Area, the rate of groundwater movement near the 216-B-63 Trench is low, approximating 0.1 m/day. The monitoring network for the 216-B-63 Trench currently meets RCRA requirements as defined in the monitoring plan.

5.1 HISTORY OF RCRA GROUNDWATER MONITORING

Quarterly RCRA groundwater sampling of the 216-B-63 Trench monitoring network was started in the third quarter of 1988 with an interim-status indicator parameter evaluation (detection-level) program (WHC-SD-EN-AP-165, *Interim-Status Groundwater Monitoring Plan for the 216-B-63 Trench*). The wells were sampled quarterly through calendar year 1993, and then semiannual sampling for indicator parameters evaluation was initiated.

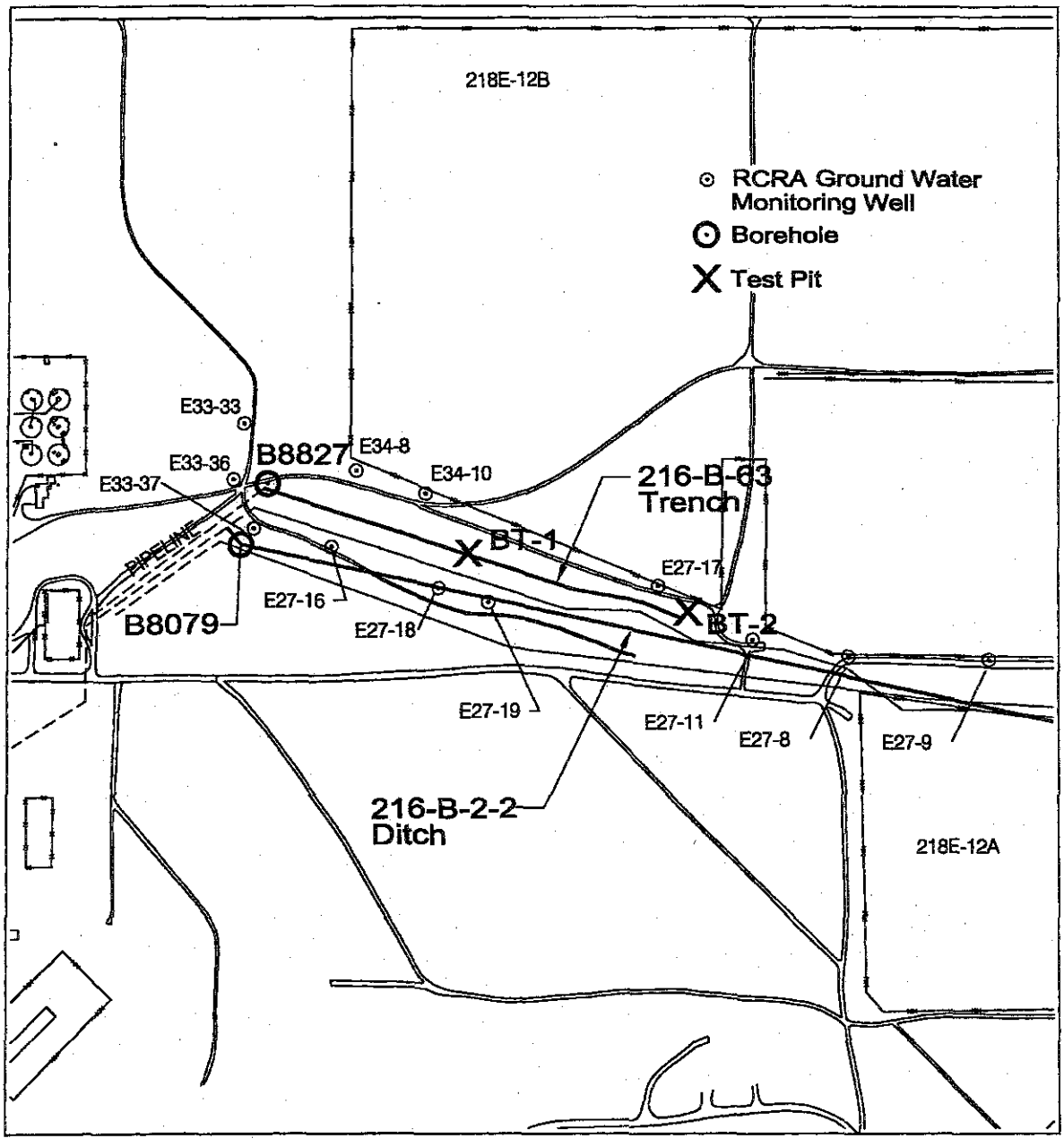
5.2 AQUIFER IDENTIFICATION

The uppermost or unconfined aquifer beneath the 216-B-63 Trench is 3.4 to 6.1 m (11.2 to 20.0 ft) thick and is contained within the sediments of the Hanford formation. The aquifer extends from the water table to the top of the basalt. The Ringold Formation is absent beneath the trench. Groundwater flow is generally east to west because of the groundwater recharge from the 216-B-3 Pond system. Beneath the ditch, the water table is nearly flat, and the table has been declining since the decrease of the 216-B-3 Pond system discharges.

5.3 WELL LOCATION AND DESIGN

The current monitoring well network consists of 12 wells (Figure 2). These wells include five upgradient wells (i.e., 299-E27-8, 299-E27-9, 299-E27-11, 299-E27 -17, and 299-E34-10) and seven downgradient wells (i.e., 299-E27-16, 299-E27-18, 299-E27-19, 299-E33-33, 299-E33-36, 299-E33-37, and 299-E34-8). All of the wells are sampled semiannually with dedicated sampling pumps.

Figure 2. Borehole and Test Pit Location Map for the 216-B-63 Trench



Construction of wells followed RCRA standard well construction specifications. The standards provided in WAC 173-160, "Minimum Standards for Construction and Maintenance of Wells," were used to set the basic design requirements. The interim-status groundwater monitoring network for the 216-B-63 Trench includes 12 wells constructed from 1987 through 1992. All of the wells are constructed with screens at the water table. Construction summaries and details of drilling and design specifications for all of the wells in the interim-status groundwater monitoring system are contained in PNNL-14112. Five upgradient wells (i.e., 299-E27-8, 299-E27-9, 299-E27-11, 299-E27-17, and 299-E34-10) were selected to determine the background groundwater chemistry.

5.4 RESULTS OF RCRA INTERIM-STATUS GROUNDWATER MONITORING DATA

The RCRA indicator parameters are specific conductance, pH, total organic carbon, and total organic halides. Groundwater quality parameters are chloride, iron (filtered), manganese (filtered), phenols, sodium (filtered), and sulfate. The 216-B-63 Trench has been in an interim-status indicator parameter evaluation (detection-level) program since 1988. There are no RCRA indicator parameters exceedances, nor are there significant detections that could be attributed to this trench.

The groundwater near the 216-B-63 Trench displays pH at levels above interim drinking water standards, but they are not considered attributable to the TSD unit. Unfiltered chromium and iron historically have exceeded drinking water standards in several wells. These concentrations have been attributed to well construction and oxidizing conditions in the aquifer. Results for filtered samples have not exceeded the drinking water standard.

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6.0 CLOSURE STRATEGY AND PERFORMANCE STANDARDS

This chapter identifies the 216-B-63 Trench closure strategy and closure performance standards for structures and soils. Groundwater is discussed in Chapter 5.0.

6.1 CLOSURE STRATEGY

The standards for closure of Hanford Facility interim-status TSD units are contained in WAC 173-303-610, "Dangerous Waste Regulations," "Closure and Post-Closure," based on the Tri-Party Agreement Action Plan, Section 5.3. The possibility of clean closure for all TSD units at the Hanford Facility is described in the Tri-Party Agreement Action Plan, Section 6.3.1.

6.2 CLOSURE PERFORMANCE STANDARDS

This section identifies general clean-closure performance standards and the specific closure standards for the structures and soils.

6.2.1 Treatment, Storage, and Disposal Unit Closure Performance Standards

The closure performance standards of WAC 173-303-610(2)(a)(i - iii), "Dangerous Waste Regulations," "Closure and Post-Closure," "Closure Performance Standard," require the owner or operator of a TSD facility to close the facility in a manner that: (1) "minimizes the need for further maintenance," (2) "controls, minimizes, or eliminates to the extent necessary to protect human health and the environment, postclosure escape of dangerous waste, dangerous waste constituents, leachate, contaminated runoff, or dangerous waste decomposition products to the ground, surface water, groundwater, or the atmosphere" and, (3) "returns the land to the appearance and use of surrounding land areas to the degree possible given the nature of the previous dangerous waste activity." These standards can be met by the clean-closure removal or decontamination standard of WAC 173-303-610(2)(b).

Potential contaminant exposures and health impacts to humans largely are dependent on land use. The land use for the 200 Areas selected by the U.S. Department of Energy through 64 FR 61615, "Record of Decision: Hanford Comprehensive Land-Use Plan Environmental Impact Statement (HCP EIS)", is industrial (exclusive). Industrial cleanup standards are identified in WAC 173-340-745(5), "Soil Cleanup Standards for Industrial Properties," "Method C Industrial Soil Cleanup Levels." Before the WAC 173-340-745(5) standards are applied, however, clean closure is evaluated based on the traditional application of WAC 173-340-740(3), "Unrestricted Land Use Soil Cleanup Standards," "Method B Soil Cleanup Levels for Unrestricted Land Use," as required by WAC 173-303-610(2)(b)(i). The standards in WAC 173-340-745(5) can be imposed through the alternative closure requirements of WAC 173-303-610(1)(e), "Dangerous Waste Regulations," "Closure and Post-Closure," "Applicability."

The first approach to examine for TSD unit closure is clean closure. Clean closure will eliminate the need for future inspections and maintenance necessitated by TSD unit constituent contamination. Clean closure also will eliminate the need for future postclosure monitoring and maintenance of the soils. Clean closure using the WAC 173-340-740(3) values were examined first because if the DOE/RL-2004-17 data showed that the soils met WAC 173-340-740(3) values as is without further remediation, the TSD unit clean closure could occur independent of the OU remediation activities.

If the TSD unit constituents cannot meet the WAC 173-340-740(3) values, then the WAC 173-340-745(5) values are used to determine if the closure standard has been met. If the DOE/RL-2004-17 data showed that the soils met WAC 173-340-745(5) values as is without remediation, the alternative closure requirements of WAC 173-303-610(1)(e) would be used to implement closure.

6.2.2 Soil Closure Standards

The clean-closure requirements are established in WAC 173-303-610(2)(b) and the surface impoundment standards in WAC 173-303-650(6)(a), "Dangerous Waste Regulations," "Surface Impoundments," "Closure and Post-Closure Care," to remove or decontaminate unit soils contaminated above clean-closure standards. These soil clean-closure cleanup levels are the numeric levels identified in WAC 173-340-740(3) that are either (1) levels calculated using the most restrictive WAC 173-340-740(3) formulas for unrestricted use or (2) background levels (DOE/RL-92-24, *Hanford Site Background: Part 1, Soil Background for Nonradioactive Analytes*) when the most restrictive WAC 173-340-740(3) formulas are more stringent than Hanford Site background concentrations.

WAC 173-340-740(3) contains the following potential clean-closure standards: Environmental protection related to ecological receptors, soil concentrations protective of groundwater, soil direct-contact carcinogens, soil direct-contact non-carcinogens, soil direct-contact petroleum vapors, and soil vapors. The 'environmental protection related to ecological receptors' values are not a clean-closure standard for TSD unit closure, based on WAC 173-340-7493(2)(a)(i), "Site-Specific Terrestrial Ecological Evaluation Procedures," "Problem Formulation Step," "The Chemicals of Ecological Concern." The 'soil concentrations protective of groundwater,' 'soil direct-contact carcinogens,' and 'soil-direct contact noncarcinogens' are applicable and are identified in Table 1. The 'soil concentrations protective of groundwater' value for nitrate was established using the alternative fate and transport provisions in WAC 173-340-747(8), "Deriving Soil Concentrations for Ground Water Protection," "Alternative Fate and Transport Models," as described in DOE/RL-2005-63, *Feasibility Study for the 200-CS-1 Chemical Sewer Group Operable Unit*, Section 2.13, and Table 3-1. The 'soil direct-contact petroleum vapors' and 'soil vapors' standards do not apply, because there are no petroleum compounds and no volatile organic compounds related to TSD unit closure, respectively.

6.2.3 Structure Closure Standard

The clean-closure standard for 216-B-63 Trench structures is established in accordance with WAC 173-303-610(2)(b)(ii) on a case-by-case basis. Structures identified as part of the TSD

unit include the 38 cm (15-in.) pipe extending to the 207-B Retention Basin. Achievement of a cleanclosure standard for the pipe will be demonstrated through use of process knowledge (Chapter 3.0), knowledge of waste characteristics (Chapter 4.0), and the following discussion.

The 38 cm (15-in.) pipe was not sampled as part of the remedial investigation activities. However, the 38 cm (15-in.) pipe meets clean-closure requirements without further investigation, because it is not reasonably expected to be contaminated with TSD unit constituents above clean-closure levels. The pipe is considered to be empty. No liquid has been added since 1992, and the piping was sloped and perforated, allowing no residual liquid to remain. Dangerous waste residues would not reasonably exist on internal piping surfaces contacted by waste, given that the effluent was primarily water (Section 4.1) and was very low in solids. Given this, no reasonable potential exists for TSD unit constituents to exist in piping as residues at levels that could reasonably exceed the WAC 173-340-740(3) clean-closure requirements.

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7.0 CLOSURE ACTIVITIES

This chapter summarizes clean-closure activities for the 216-B-63 Trench performed as a portion of 200-CS-1 OU remediation process. Physical closure activities included TSD unit physical isolation, borehole and test pit drilling, and sampling and analysis. These activities are completed. The only action remaining is administrative (e.g., certification).

7.1 TREATMENT, STORAGE, AND DISPOSAL UNIT PHYSICAL ISOLATION

To preclude any further discharges to the unit, and in support of TSD unit closure, the 216-B-63 Trench was physically isolated from receipt of the B Plant chemical sewer effluent in 1992. The trench was covered with dirt in November 1994. The inlet pipe was filled with cement in December 1994. The trench no longer can accept dangerous waste.

7.2 TREATMENT, STORAGE, AND DISPOSAL UNIT SAMPLING AND ANALYSIS

The following sections describe sampling and analyses activities that have been completed for the 216-B-63 Trench.

7.2.1 Soil Sampling and Analysis

As part of the 200-CS-1 OU remedial investigation, data were collected to characterize the nature and vertical extent of contamination and the physical conditions in the vadose zone underlying the 216-B-63 Trench. Drilling, test pit excavation, surface and borehole geophysical surveys, and soil sampling and analysis were conducted during the field activities. Borehole and test pit locations are shown in Figure 2.

Borehole B8827 was drilled and sampled, and Test Pits BT-1 and BT-2A were excavated and sampled in the 216-B-63 Trench, located east of the B Tank Farm in the 200 East Area. The two samples scheduled to be taken from Test Pit BT-1 at depths of 6.1 and 7.6 m (20 and 25 ft) were not obtained, because the test pit caved in excessively. Excavation equipment regulated for use in contaminated environments was unavailable, so sampling at Test Pit BT-2 in fiscal year 2002 was terminated on November 2, 2001, after sampling at the 2.3 m to 2.6 m (7.5 to 8.5 ft) depth. At that point, the soil was returned to the sampling pit in the reverse order from which it was excavated. Test pit BT-2A was excavated and sampled to 7.6 m (25 ft) on November 11, 2002. This test pit was designated "BT-2A" to distinguish it from the fiscal year 2002 operations.

Borehole B8827 was drilled and sampled during fiscal year 2003. The borehole was drilled through the 216-B-63 Trench, from the ground surface to a depth of 31.4 m (103 ft). The borehole was logged using a high-resolution spectral gamma-ray logging system and a neutron-moisture logging system. The borehole was drilled to better define stratigraphy and to assess the

nature and vertical extent of contamination, as well as to determine the physical properties of the soil beneath the TSD unit.

The test pit locations were prepared by removing 0.3 to 0.6 m (1 to 2 ft) of topsoil from the site. The test pits were excavated to a maximum depth of 7 m (25 ft) below ground surface, using a track-hoe. Samples were obtained directly from the track-hoe bucket at intervals of approximately 0.7 m (2.5 ft). Before they were placed in a sample jar, the soil samples were screened in the field to assist in selecting sample points, to support worker health and safety, and to provide shipping information. Samples were analyzed for chemical and physical properties. The test pits were backfilled in the reverse order from which they were excavated, using the track hoe.

Soils from the boreholes and test pits were screened in the field both for indications of contamination and to assist in determining the discrete sample locations or depths before the samples were collected. Soil samples were collected for analysis and determination of physical properties. The sampling approach generally required a greater sample frequency near the bottom of the TSD unit, which is the area of highest suspected contamination. Sample collection always was attempted at depths of 4.6 and 7.6 m (15 and 25 ft) below ground surface to define contamination profiles. Sample frequency generally was reduced to 6.1 to 15.2 m (20- to 50-ft) intervals below a depth of 7.6 m (25 ft) in the boreholes.

Soil samples were analyzed for the constituents of concern from DOE/RL-2004-17. Samples were analyzed selectively for field bulk density and moisture content. In addition, ditch bottom samples from each of the test pits were analyzed for an expanded list of compounds, to satisfy waste designation requirements. Soil descriptions were recorded to better define stratigraphic relationships in the OU. The results obtained from previous characterization activities also were evaluated as part of this remedial investigation.

7.2.2 Soil Sample Results

Analytical results obtained from the remedial investigation were intended for RCRA closure decisions and are defensible for use in this closure plan. Table 1 identifies the maximum concentration of TSD unit constituents in shallow soils and deep-zone soils from DOE/RL-2004-017, Tables 4-1 and 4-3, respectively. The maximum values are compared to the clean-closure levels described in Section 6.2.2. When the maximum value exceeded the clean-closure level for 'nitrates (as N)', the 95 percent upper confidence level was used from DOE/RL-2005-63, Section 2.13.

Table 1 shows that the three TSD unit constituents [sodium, sulfate, nitrate (as N)] either meet the clean-closure standard using WAC 173-340-740(3) values or the constituent is not regulated. Further evaluation of data using the WAC 173-340-745(5) closure values was not necessary.

7.3 OTHER ACTIVITIES REQUIRED FOR CLOSURE

No other physical activities are required for closure. After closure, the appearance of the land will be consistent with land-use determinations of the Hanford Facility.

7.4 INSPECTIONS

The TSD unit has been inspected to meet interim-status requirements. Annual inspections are performed based on Ecology approval in 2003. Following closure certification as described in Section 7.8, inspections for the 216-B-63 Trench will be discontinued.

7.5 TRAINING

A dangerous waste training plan has been maintained for the TSD unit to meet interim-status requirements. The duties associated with dangerous waste management activities include performing inspections, notifying Ecology of any potential threats to human health and the environment, and performing groundwater monitoring. Following closure certification as described in Section 7.8, the dangerous waste training plan addressing the 216-B-63 Trench waste management duties will be discontinued.

7.6 SCHEDULE FOR CLOSURE

No OU-related activities are required for closure. Following submittal of this closure plan to Ecology, Ecology's 90-day review period begins in accordance with the Tri-Party Agreement Action Plan, Figure 9-2.

7.7 AMENDMENTS OF CLOSURE PLAN

As required by WAC 173-303-610(3)(b), "Dangerous Waste Regulations," "Closure and Post-Closure," "Closure Plan; Amendment of Plan," the closure plan will be amended if changes to closure activities require a modification of the approved closure plan. However, no changes are expected, because closure activities relating to the soils, structures, and groundwater are complete.

7.8 CERTIFICATION OF CLOSURE

In accordance with WAC 173-303-610(6), "Dangerous Waste Regulations," "Closure and Post-Closure," "Certification of Closure," within 60 days of completion of TSD unit closure, the U.S. Department of Energy will submit to the lead regulatory agency (Ecology) a certification of closure. The 60-day period will begin upon Ecology approval of this closure plan. Both the U.S. Department of Energy and the Co-Operator identified on the current Part A Permit Application (DOE 2002, *216-B-63 Trench Part A, Form 3 Dangerous Waste Permit Application*) will sign the certification of closure, and an independent Registered Professional Engineer will

state that the unit has been closed in accordance with the approved closure plan. The certification will be submitted by registered mail or an equivalent delivery service. Documentation supporting the independent Registered Professional Engineer's certification will be placed in the Administrative Record.

8.0 POSTCLOSURE PLAN

The closure strategy for the 216-B-63 Trench is clean closure with regard to TSD unit constituents for structures, soils, and groundwater. Therefore, no postclosure plan is required.

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9.0 REFERENCES

40 CFR 265, Subpart F, "Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," Subpart F, "Ground-Water Monitoring," Title 40, *Code of Federal Regulations*, Part 265, as amended.

40 CFR 265.93(b), "Interim Status for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," "Preparation, Evaluation, and Response," Title 40, *Code of Federal Regulations*, Part 265.93(b), as amended.

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Hanford Environmental Information System, Hanford Site database.

PNNL-14112, 2002, *Groundwater Monitoring Plan for the 216-B-63 Trench on the Hanford Site*, Pacific Northwest National Laboratory, Richland, Washington.

PNNL-15070, 2005, *Hanford Site Groundwater Monitoring for Fiscal Year 2004*, Pacific Northwest National Laboratory, Richland, Washington.

Resource Conservation and Recovery Act of 1976, 42 USC 6901, et seq.

WA7890008967, *Hanford Facility RCRA Permit*, Washington State Department of Ecology, Richland, Washington, as amended.

WAC 173-160, "Minimum Standards for Construction and Maintenance of Wells, as amended, Washington State Department of Ecology, Olympia, Washington.

WAC 173-303, "Dangerous Waste Regulations," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

WAC 173-303-090(6), "Dangerous Waste Characteristics," "Characteristic of Corrosivity," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

WAC 173-303-400, "Dangerous Waste Regulations," "Interim Status Facility Standards," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

WAC 173-303-610, "Dangerous Waste Regulations," "Closure and Post-Closure," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

WAC 173-303-610(1), "Dangerous Waste Regulations," "Closure and Post-Closure," "Applicability," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

WAC 173-303-610(2), "Dangerous Waste Regulations," "Closure and Post-Closure," "Closure Performance Standard," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

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WAC 173-303-610(6), "Dangerous Waste Regulations," "Closure and Post-Closure," "Certification of Closure," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

WAC 173-303-650(6), "Dangerous Waste Regulations," "Surface Impoundments," "Closure and Post-Closure Care," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

WAC 173-340-700(6)(d), "Overview of Cleanup Standards," "Requirements for Setting Cleanup Levels," "Natural Background and Analytical Considerations," *Washington Administrative Code,* as amended, Washington State Department of Ecology, Olympia, Washington.

WAC 173-340-740(3), "Unrestricted Land Use Soil Cleanup Standards," "Method B Soil Cleanup Levels for Unrestricted Land Use," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

WAC 173-340-740(3)(b)(ii), "Unrestricted Land Use Soil Cleanup Standards," "Method B Soil Cleanup Levels for Unrestricted Land Use," "Standard Method B Soil Cleanup Levels," "Environmental Protection," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

WAC 173-340-740(3)(b)(iii)(A), "Unrestricted Land Use Soil Cleanup Standards," "Method B Soil Cleanup Levels for Unrestricted Land Use," "Standard Method B Soil Cleanup Levels," "Human Health Protection," "Ground Water Protection," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

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WAC 173-340-740(3)(b)(iii)(B)(II), "Unrestricted Land Use Soil Cleanup Standards," "Method B Soil Cleanup Levels for Unrestricted Land Use," "Standard Method B Soil Cleanup Levels," "Human Health Protection," "Soil Direct Contact," "Carcinogens," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

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WAC 173-340-747(8), "Deriving Soil Concentrations for Ground Water Protection," "Alternative Fate and Transport Models," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

WAC 173-340-7493(2)(a)(i), "Site-Specific Terrestrial Ecological Evaluation Procedures," "Problem Formulation Step," "The Chemicals of Ecological Concern," *Washington Administrative Code*, as amended, Washington State Department of Ecology, Olympia, Washington.

WHC-EP-0342, 1990, Addendum 6, *B Plant Chemical Sewer Stream-Specific Report*, Westinghouse Hanford Company, Richland, Washington.

WHC-SD-EN-AP-165, 1995, *Interim-Status Groundwater Monitoring Plan for the 216-B-63 Trench*, Rev. 1, Westinghouse Hanford Company, Richland, Washington.

DISTRIBUTION

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STATE ENVIRONMENTAL POLICY ACT
ENVIRONMENTAL CHECKLIST

FOR THE

HANFORD FACILITY,
216-B-63 TRENCH CLOSURE

REVISION 0

March 2006

WASHINGTON ADMINISTRATIVE CODE
ENVIRONMENTAL CHECKLIST
[WAC 197-11-960]

A. BACKGROUND

1. Name of proposed project, if applicable:

This *State Environmental Policy Act* (SEPA) *of 1971* Environmental Checklist is being submitted for closure of the Hanford Facility, 216-B-63 Trench. This area will be closed with respect to dangerous waste contamination that resulted from treatment operations as a *Resource Conservation and Recovery Act* (RCRA) *of 1976* treatment, storage, and/or disposal (TSD) unit.

2. Name of applicants:

U.S. Department of Energy, Richland Operations Office (DOE-RL).

3. Address and phone number of applicants and contact persons:

U.S. Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

Contact:

Keith A. Klein, Manager
Richland Operations Office
(509) 376-7395

4. Date checklist prepared:

March 2006.

5. Agency requesting the checklist:

Washington State Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600

6. Proposed timing or schedule: (including phasing, if applicable):

This SEPA Environmental Checklist is being submitted concurrently with a closure plan prepared in accordance with Washington Administrative Code (WAC) 173-303 Dangerous Waste Regulations. The closure plan will be submitted to the Washington State Department of Ecology by March 2006.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

No. The 216-B-63 Trench closure plan is being submitted in conjunction with 216-S-10 Pond and Ditch closure plan and the 216-A-29 Ditch closure plan. The 216-S-10 Pond and Ditch closure plan submittal is required by March 31, 2006 in accordance with Tri-Party Agreement (Ecology et al) Milestone

M-20-39. The 216-A-29 Ditch, 216-B-63 Trench, and the 216-S-10 Pond and Ditch TSD units are all within the 200-CS-1 source Operable Unit.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

The original closure plan for the 216-B-63 Trench was submitted to the State of Washington Department of Ecology (Ecology) pursuant to Tri-Party Agreement milestone M-20-36 in April 1995. A revised closure plan is being prepared.

This SEPA Environmental Checklist is being submitted to Ecology to address the 216-B-63 Trench proposed closure activities. Environmental information that has been prepared directly related to this proposal is contained in DOE/RL-2004-017, *Remedial Investigation Report for the 200-CS-1 Chemical Sewer Group Operable Unit* and groundwater data contained in the Hanford Environmental Information System (HEIS). Because the closure plan proposes clean closure for soils and groundwater, no environmental information will be prepared directly related to this proposal. Any other information related to 216-S-10 Pond and Ditch after closure of the TSD unit will be performed in conjunction with Tri-Party Agreement past practice activities for the 200-CS-1 source operable unit and 200-BP-5 groundwater operable unit.

The development of the revised closure plan has been coordinated with the 200-CS-1 source operable unit in accordance with Tri-Party Agreement milestone M-15-39C. This coordinated approach was established in June 2002 following the completion of negotiations between the Tri-Parties on the modifications to 200 Area waste site cleanup milestones through Tri-Party Agreement change requests M-13-02-01, M-15-02-01, M-16-02-01, and M-20-02-01.

The proposed closure strategy for the 216-B-63 Trench soils, structures, and groundwater is clean closure. This strategy is based upon analytical data summarized in the *Remedial Investigation Report for the 200-CS-1 Chemical Sewer Group Operable Unit* (DOE/RL-2004-17) and groundwater data contained in the Hanford Environmental Information System (HEIS).

General information concerning the Hanford Facility environment can be found in the *Hanford Site National Environmental Policy Act (NEPA) Characterization*, PNL-6415, Revision 17, September 2005. This document is updated annually by Pacific Northwest National Laboratory (PNNL), and provides current information concerning climate and meteorology, ecology, history and archeology, socioeconomic, land use and noise levels, and geology and hydrology. These baseline data for the Hanford Site and past activities are useful for evaluating proposed activities and their potential environmental impacts.

9. Do you know whether applications are pending for government approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

No other applications are pending. However, see response to A8 regarding physical activities necessary to complete remediation of non-TSD unit constituents.

10. List any government approvals or permits that will be needed for your proposal, if known.

DOE-RL forwards the aforementioned 216-B-63 Trench closure plan to Ecology for approval.

11. **Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page.**

The proposed closure strategy for the 216-B-63 Trench soils, structures, and groundwater is clean closure.

The 216-B-63 Trench is located in the 200 East Area of the Hanford Facility. The 216-B-63 Trench was constructed before 1970 as a percolation trench to receive emergency cooling water and chemical sewer waste from B Plant (221-B Canyon Building). The 216-B-63 Trench began waste management operation in March of 1970 by receiving the B Plant chemical sewer effluent. The 216-B-63 Trench received waste between March 1970 and February 1992. The 216-B-63 Trench received effluent from many buildings at the B Plant Complex. The trench terminated south of the 218-E-12B Burial Ground. It was designed to receive diverted contaminated cooling water in order to prevent the diverted water from reaching the 216-B-3 Pond. In February 1992, the B Plant chemical sewer effluent was combined with the B Plant cooling water effluent and discharged into the 216-B-3 Pond. The trench was taken out of service in 1992.

Current data for soils show that the three TSD unit constituents [sodium, sulfate, nitrate (as N)] either meet the clean closure standard using WAC 173-340-740(3) values or the constituent is not regulated.

For groundwater, the RCRA indicator parameters are specific conductance, pH, total organic carbon, and total organic halides. Groundwater quality parameters are chloride, iron (filtered), manganese (filtered), phenols, sodium (filtered), and sulfate. The 216-B-63 Trench has been in an interim status indicator parameter evaluation (detection-level) program since 1988. There are no RCRA indicator parameters exceedances nor are there significant detections that could be attributed to this trench.

No physical activities are required for closure. After closure, appearance of the land will be consistent with land use determinations of the Hanford Facility.

12. **Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.**

The 216-B-63 Trench is located in the 200 East Area of the Hanford Facility. The 216-B-63 Trench was constructed before 1970 as a percolation trench to receive emergency cooling water and chemical sewer waste from B Plant (221-B Canyon Building). The ditch was an open, unlined, man-made earthen trench that was closed at one end (did not convey effluent to another facility). The trench was approximately 427 m (1,400 ft) long, 1.2 m (4 ft) wide, and averaged 3 m (10 ft) deep. The side slope was 1.5:1. The first 3.1 m (10 ft) of the trench contained a 5.1 cm (2-in) rockfill. A 40.6 m (16-in.) inlet pipe approximately 1.5 m (5 ft) long entered the trench 1 m (3 ft) below grade. In addition to the trench itself, the TSD unit also includes the 15-inch pipe extending to the 207-B basin.

TO BE COMPLETED BY APPLICANT

EVALUATIONS FOR AGENCY USE ONLY

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, other_____.

Flat.

b. What is the steepest slope on the site (approximate percent slope)?

The approximate slope of the land is less than 2 percent.

c. What general types of soils are found on the site? (for example, clay, sandy gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

Soil types consist mainly of eolian and fluvial sands and gravel. More detailed information concerning specific soil classifications can be found in the *Hanford Site National Environmental Policy Act (NEPA) Characterization*, PNL-6415, Revision 17, September 2005. Farming is not permitted on the Hanford Facility.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

No.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

No filling or grading is required.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

No.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Not applicable. No construction is proposed as part of this project.

TO BE COMPLETED BY APPLICANT

EVALUATIONS FOR AGENCY USE ONLY

h. **Proposed measures to reduce or control erosion, or other impacts to the earth, if any:**

None.

2. Air

a. **What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities, if known.**

None. No physical activities are required to support closure of the 216-B-63 Trench.

b. **Are there any off-site sources of emissions or odors that may affect your proposal? If so, generally describe.**

No.

c. **Proposed measures to reduce or control emissions or other impacts to the air, if any?**

None since no emissions are anticipated for the closure of the 216-B-63 Trench.

3. Water

a. Surface

1) **Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.**

No. The 216-B-63 Trench is over 7 kilometers from the Columbia River.

2) **Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.**

The work would not require any activity in or near the described waters and drainage.

TO BE COMPLETED BY APPLICANT | **EVALUATIONS FOR AGENCY USE ONLY**

3) **Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.**

There would be no dredging or filling from or to surface water or wetlands.

4) **Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.**

No surface water withdrawal or diversion would be required.

5) **Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.**

The 216-B-63 Trench is not within the 100-year or 500-year floodplain [*Hanford Site National Environmental Policy Act (NEPA) Characterization*, PNL-6415, Revision 17, September 2005].

6) **Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.**

No.

b. Ground

1) **Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.**

No.

2) **Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals...; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.**

None.

TO BE COMPLETED BY APPLICANT

EVALUATIONS FOR AGENCY USE ONLY

c. **Water Run-off (including storm water)**

1) **Describe the source of run-off (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.**

The Hanford Facility receives only 15.2 to 17.8 centimeters of annual precipitation. Precipitation runs off the existing buildings and seeps into the soil on and near the buildings. This precipitation does not reach the groundwater or surface waters.

2) **Could waste materials enter ground or surface waters? If so, generally describe.**

No waste materials can enter ground or surface waters as a result of closure.

d. **Proposed measures to reduce or control surface, ground, and run-off water impacts, if any:**

No measures are proposed to reduce or control surface, ground, and run-off impacts.

4. **Plants**

a. **Check or circle the types of vegetation found on the site.**

- ☐ deciduous tree: alder, maple, aspen, other
- ☐ evergreen tree: fir, cedar, pine, other
- ☒ shrubs
- ☒ grass
- ☐ pasture
- ☐ crop or grain
- ☐ wet soil plants: cattail, buttercup, bulrush, skunk cabbage, other
- ☐ water plants: water lily, eelgrass, milfoil, other
- ☐ other types of vegetation

The most common vegetation community in the 200 East Area is sagebrush/cheatgrass or Sandberg's bluegrass. Native vegetation resides in the immediate vicinity of the 216-B-63 Trench.

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b. What kind and amount of vegetation will be removed or altered?

No vegetation would be removed or altered during 216-B-63 Trench closure activities.

c. List threatened or endangered species known to be on or near the site.

No known threatened or endangered species are known to be on or near the 216-B-63 Trench. Additional information on species can be found in *Hanford Site National Environmental Policy Act (NEPA) Characterization*, PNL-6415 (Revision 17, September 2005).

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

None.

5. Animals

a. Indicate (by underlining) any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: Raptors (burrowing owls, ferruginous, redtail, and Swainson's hawks) eagles, songbirds,
animals: deer, elk, coyotes, rabbits, rodents.

Additional information on animals can be found in *Hanford Site National Environmental Policy Act (NEPA) Characterization*, PNL-6415 (Revision 17, September 2005).

b. List any threatened or endangered species known to be on or near the site.

One federal and state listed threatened or endangered species has been identified on the 1,517 square kilometer Hanford Site along the Columbia River (the bald eagle) and three in the Columbia River (steelhead, spring-run Chinook salmon, and bull trout). In addition, the state listed white pelican, sandhill crane, and ferruginous hawk also occur on or migrate through the Hanford Site.

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c. **Is the site part of a migration route? If so, explain.**

The Hanford Site is a part of the broad Pacific Flyway. However, the 216-B-63 Trench location is not known as a haven for migratory birds.

d. **Proposed measures to preserve or enhance wildlife, if any:**

This project contains no specific measures to preserve or enhance wildlife.

6. **Energy and Natural Resources**

a. **What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.**

None.

b. **Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.**

No.

c. **What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:**

None.

7. **Environmental Health**

a. **Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, describe.**

No.

1) **Describe special emergency services that might be required.**

No special emergency services are known to be required.

2) **Proposed measures to reduce or control environmental health hazards, if any:**

None.

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b. Noise

1) **What type of noise exists in the area which may affect your project (for example: traffic, equipment, operation, other)?**

None is anticipated.

2) **What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.**

None is anticipated.

3) **Proposed measures to reduce or control noise impacts, if any:**

None.

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties?

The 216-B-63 Trench site is not in use. Adjacent properties are industrial/research.

b. Has the site been used for agriculture? If so, describe.

No portion of the 200 East Area has been used for agricultural purposes since 1943.

c. Describe any structures on the site.

There are no structures at the 216-B-63 Trench site.

d. Will any structures be demolished? If so, what?

Not applicable. There are no structures on the site (refer to Section B.8.c).

e. What is the current zoning classification of the site?

Does not apply. The site is located on Federal lands and as such is not subject to the Growth Management Act (State of Washington land use authority). However, for completeness, the Hanford Site is

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currently included in the Benton County Comprehensive Plan (June 22, 1998) as the undesignated "Hanford Sub-Area".

f. **What is the current comprehensive plan designation of the site?**

The Federal land management decision process has determined through NEPA [*Hanford Comprehensive Land-Use Plan Environmental Impact Statement Record of Decision* (64 FR 61615, November 12, 1999)] that the 200 East Area geographic area, which includes the 216-B-63 Trench, is designated Industrial-Exclusive.

g. **If applicable, what is the current shoreline master program designation of the site?**

Does not apply.

h. **Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.**

No.

i. **Approximately how many people would reside or work in the completed project?**

Not applicable.

j. **Approximately how many people would the completed project displace?**

None.

k. **Proposed measures to avoid or reduce displacement impacts, if any:**

Does not apply.

l. **Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:**

Does not apply (refer to Section B.8.f.).

9. Housing

a. **Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.**

None.

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b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

None.

c. Proposed measures to reduce or control housing impacts, if any:

Does not apply.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

No new structures are being proposed.

b. What views in the immediate vicinity would be altered or obstructed?

None.

c. Proposed measures to reduce or control aesthetic impacts, if any:

None.

11. Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

None.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

No.

c. What existing off-site sources of light or glare may affect your proposal?

None.

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d. **Proposed measures to reduce or control light and glare impacts, if any:**

None.

12. **Recreation**

a. **What designated and informal recreational opportunities are in the immediate vicinity?**

None.

b. **Would the proposed project displace any existing recreational uses? If so, describe.**

No.

c. **Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any?**

None.

13. **Historic and Cultural Preservation**

a. **Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.**

No places or objects listed on, or proposed for, national, state, or local preservation registers are known to be on or next to the 216-B-63 Trench.

b. **Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.**

There are no known archaeological, historical, or Native American religious sites on or near the 216-B-63 Trench.

c. **Proposed measures to reduce or control impacts, if any:**

None.

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14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

Does not apply.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

No. The distance to the nearest public transit stop is approximately 50 kilometers, located at Washington State University Tri-Cities.

c. How many parking spaces would the completed project have? How many would the project eliminate?

Not applicable.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

No.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

No additional vehicular traffic will be required.

g. Proposed measures to reduce or control transportation impacts, if any:

None.

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15. Public Services

a. **Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.**

No.

b. **Proposed measures to reduce or control direct impacts on public services, if any:**

Does not apply.

16. Utilities

a. **Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other:**

No utilities currently are available at the 216-B-63 Trench.

b. **Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.**

No utilities are proposed for the closure of the 216-B-63 Trench.

SIGNATURES

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

_____ _____

Keith A. Klein, Manager Date
U.S. Department of Energy
Richland Operations Office